Recording time table

D X-TL5716E: Recording time table (Recording without audio)

This table shows approximate recording times (when data are recorded to the 250 GB HDD mounted on the recorder).
The table shows estimates of recording times assuming that the settings of the picture quality and the FPS are same among all 16 cameras.

■ Picture size setting: CIF

d: day, h: hour

Quality \ FPS	25	12.5	6.25	3	1.5	0.8	0.4	0.2
L1	4d 5h	7d 19h	12d 19h	22d 20h	26d 14h	53d 6h	106d 8h	106d 10h
L2	3d 4h	6d 1h	10d 20h	19d 0h	26d 14h	53d 6h	106d 8h	106d 10h
L3	2d 20h	5d 3h	9d 2h	14d 23h	26d 10h	46d 23h	93d 21h	106d 10h
L4	2d 4h	4d 0h	6d 23h	11d 17h	20d 3h	35d 10h	70d 18h	106d 10h
L5	1d 17h	3d 2h	5d 13h	9d 5h	16d 0h	28d 10h	56d 19h	106d 10h
L6	1d 11h	2d 15h	4d 14h	7d 22h	13d 17h	23d 18h	47d 11h	95d 3h
L7	1d 6h	2d 6h	4d 0h	6d 16h	11d 13h	20d 10h	40d 19h	81d 19h
L8	1d 2h	2d 0h	3d 13h	5d 22h	10d 4h	17d 22h	35d 19h	71d 18h
L9	0d 23h	1d 18h	3d 4h	5d 5h	9d 0h	15d 22h	31d 20h	63d 20h

D X-TL308E: Recording time table (Recording without audio)

This table shows approximate recording times (when data are recorded to the 250 GB HDD mounted on the recorder).
The table shows estimates of recording times assuming that the settings of the picture quality and the FPS are same among all 8 cameras.

■ Picture size setting: CIF

d: day, h: hour

Quality \ FPS	25	12.5	6.25	3	1.5	0.8	0.4	0.2
L1	8d 10h	15d 15h	25d 15h	45d 17h	53d 5h	106d 12h	212d 17h	212d 20h
L2	6d 9h	12d 2h	21d 16h	38d 0h	53d 5h	106d 12h	212d 17h	212d 20h
L3	5d 17h	10d 7h	18d 4h	29d 22h	52d 21h	93d 23h	187d 18h	212d 20h
L4	4d 8h	8d 1h	13d 23h	23d 11h	40d 7h	70d 20h	141d 13h	212d 20h
L5	3d 11h	6d 5h	11d 3h	18d 11h	32d 1h	56d 21h	113d 15h	212d 20h
L6	2d 22h	5d 6h	9d 5h	15d 20h	27d 11h	47d 12h	94d 22h	190d 7h
L7	2d 12h	4d 12h	8d 0h	13d 9h	23d 2h	40d 20h	81d 14h	163d 14h
L8	2d 5h	4d 0h	7d 2h	11d 21h	20d 9h	35d 20h	71d 14h	143d 13h
L9	1d 23h	3d 13h	6d 9h	10d 10h	18d 0h	31d 21h	63d 16h	127d 17h

D X-TL304E(EX): Recording time table (Recording without audio)

This table shows approximate recording times (when data are recorded to the 250 GB HDD mounted on the recorder).
The table shows estimates of recording times assuming that the settings of the picture quality and the FPS are same among all 4 cameras.

■ Picture size setting: CIF

d: day, h: hour

Quality \ FPS	25	12.5	6.25	3	1.5	0.8	0.4	0.2
L1	16d 21h	31d 7h	51d 6h	91d 11h	106d 10h	213d 0h	425d 11h	425d 17h
L2	12d 19h	24d 4h	43d 9h	76d 1h	106d 10h	213d 0h	425d 11h	425d 17h
L3	11d 10h	20d 15h	36d 9h	59d 21h	105d 19h	187d 23h	375d 12h	425d 17h
L4	8d 17h	16d 2h	27d 23h	46d 23h	80d 14h	141d 17h	283d 2h	425d 17h
L5	6d 23h	12d 10h	22d 7h	36d 23h	64d 3h	113d 19h	227d 7h	425d 17h
L6	5d 20h	10d 13h	18d 11h	31d 16h	54d 23h	95d 0h	189d 20h	380d 15h
L7	5d 0h	9d 1h	16d 1h	26d 18h	46d 5h	81d 16h	163d 4h	327d 5h
L8	4d 10h	8d 0h	14d 5h	23d 18h	40d 19h	71d 16h	143d 5h	287d 3h
L9	3d 23h	7d 2h	12d 18h	20d 20h	36d 0h	63d 18h	127d 9h	255d 10h

Changes for the Better

MITSUBISHI ELECTRIC

SECURITY DIGITAL RECORDERS

ISO 9001
JQA-0521   051

DX-TL5716E/DX-TL308E/DX-TL304E(EX)

Security Solutions

— Superlative picture quality, response, operating ease —

Mitsubishi Electric security digital recorders play a key role in

CCTV-based security systems, offering

first-rate performance and reliability around the clock!

H igh performance: 400fps (25fps x 16ch)*

R eal-time recording & live monitoring

M PEG-4 for extended recording times

N ew user-friendly interface for easy setup/operation

C onnect up to 16 recorders, 16 HDD extension unit each.*
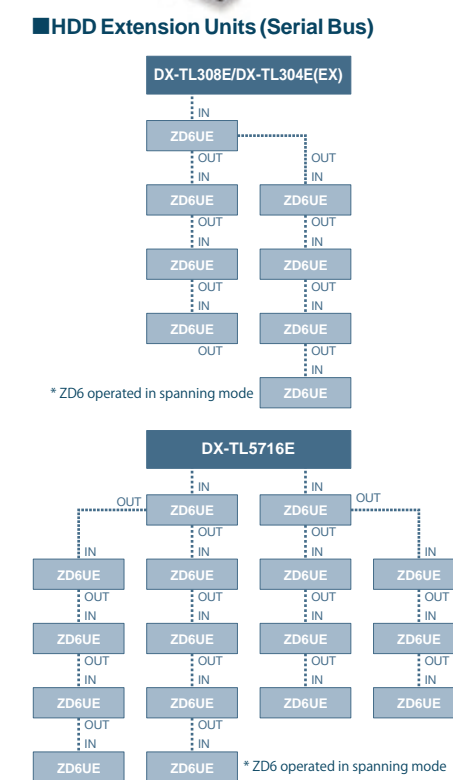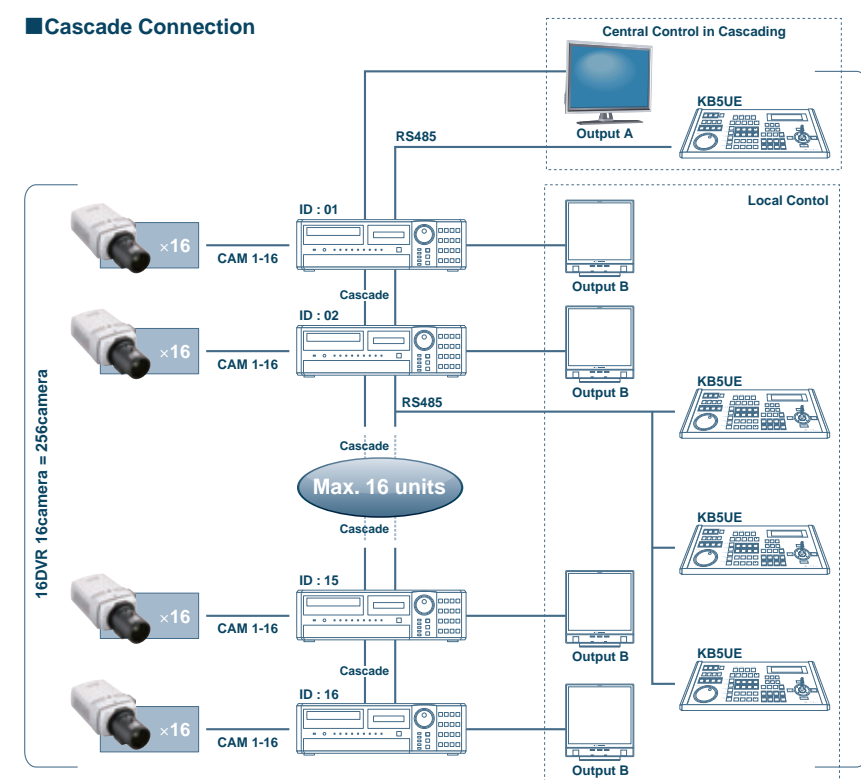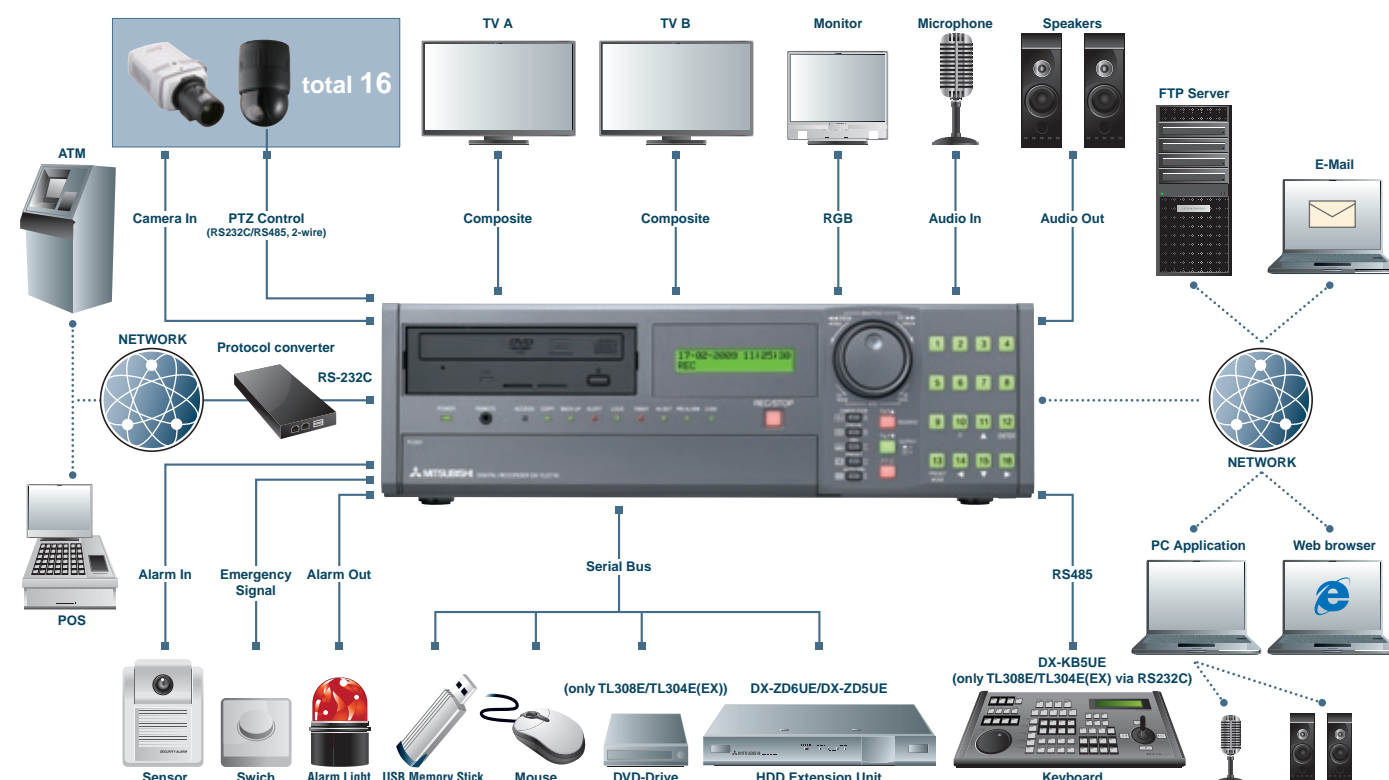
P OS/ATM transaction data recording

*DX-TL5716E

Concept

With a sterling reputation as a reliable solution provider in the field of video surveillance, Mitsubishi Electric is the security digital recorder industry leader in Japan, outselling its competitors for the past 3 years. The market is expected to continue to expand in order to meet diversified user requirements, and this new series has been designed specifically to address those needs.
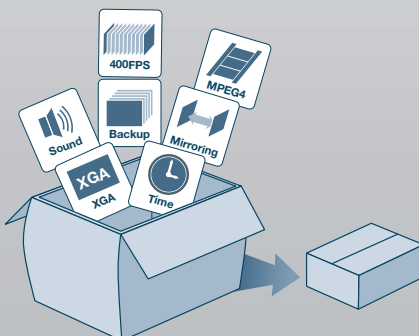
Offering unique flexibility, these security digital recorders can be connected to virtually any surveillance-related equipment. They will suit any facility, however large, and offer the critical benefits of 24/7 dependability, smooth multitasking, and a user-friendly interface.

■Cascade Connection

Central Control in Cascading

RS485

Output A

KB5UE

Local Contol

16DVR 16camera = 256camera

ID : 01
×16
CAM 1-16

Cascade

Output B

ID : 02
×16
CAM 1-16

RS485

Output B

KB5UE

Cascade

Max. 16 units

Cascade

KB5UE

ID : 15
×16
CAM 1-16

Output B

Cascade

KB5UE

ID : 16
×16
CAM 1-16

Output B

Max.4 units (KB5)

■HDD Extension Units (Serial Bus)

DX-TL308E/DX-TL304E(EX)

IN
ZD6UE
OUT / OUT
ZD6UE / ZD6UE
OUT / OUT
IN / IN
ZD6UE / ZD6UE
OUT / IN
IN / ZD6UE
ZD6UE / OUT
OUT

* ZD6 operated in spanning mode

DX-TL5716E

OUT ZD6UE / IN IN ZD6UE OUT
OUT / OUT
IN / IN
ZD6UE / ZD6UE / ZD6UE / ZD6UE
OUT / OUT / OUT / OUT
IN / IN / IN / IN
ZD6UE / ZD6UE / ZD6UE / ZD6UE
IN / IN
ZD6UE / ZD6UE / ZD6UE / ZD6UE
OUT / OUT
IN / IN
ZD6UE / ZD6UE

* ZD6 operated in spanning mode

total 16

TV A
TV B
Monitor
Microphone
Speakers
FTP Server
E-Mail

ATM
Camera In
PTZ Control
(RS232C/RS485, 2-wire)
Composite
Composite
RGB
Audio In
Audio Out

NETWORK
Protocol converter
RS-232C

NETWORK

PC Application
Web browser

Alarm In
Emergency Signal
Alarm Out
Serial Bus
RS485

POS

Sensor
Swich
Alarm Light
USB Memory Stick
Mouse
DVD-Drive
HDD Extension Unit
Keyboard

(only TL308E/TL304E(EX))
DX-ZD6UE/DX-ZD5UE

DX-KB5UE
(only TL308E/TL304E(EX) via RS232C)

Dependability

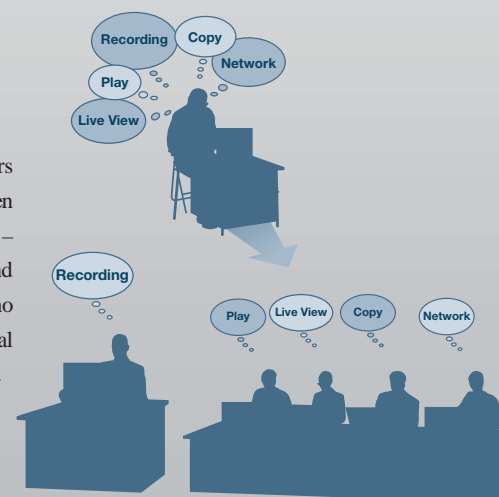**Reliable recording of everything from all cameras – 24/7**

Cutting-edge MPEG-4 compression effectively halves data volume, doubling storage capacity and recording times. Combined with the high-capacity internal storage, this means you can record continuously for a year or more. And it's easy to expand storage even more using optional DX-ZD6UE HDD extension units, so you no longer have to fine-tune your setup and economize on storage by reducing picture size or resolution. And data dependability is further enhanced with such features as HDD mirroring.

400FPS
MPEG4
Sound
Backup
Mirroring
XGA
XGA
Time

Performance

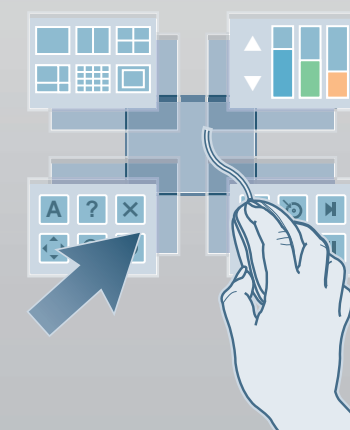**Effortless recording performance, stress-free operation**

Mitsubishi Electric security digital recorders maintain high recording performance. Even when performing 5 different tasks simultaneously – monitoring, playback, recording, copying and transferring data over a LAN – there is no noticeable performance hit. What you get is real pictures, in real time. No waiting, no frustration.

Recording
Copy
Play
Network
Live View

Recording
Play
Live View
Copy
Network

New user-friendly interface

Less manual consultation, thanks to intuitive setup and operation

The newly designed GUI (graphical user interface) features large icons to ensure superb operating ease. Everything from basic setup and camera selection to playback, search, and copy can be performed simply using the mouse.

Easy Setup & Operation

New GUI

Thanks to intuitive operating ease, there is very little need to consult the manual, even when setting up a new system. Each screen is laid out for optimum clarity and convenience, with advice always at hand in the form of a Help button. The newly designed interface combines with familiar mouse operation to ensure that daily operations are completed quickly and efficiently.
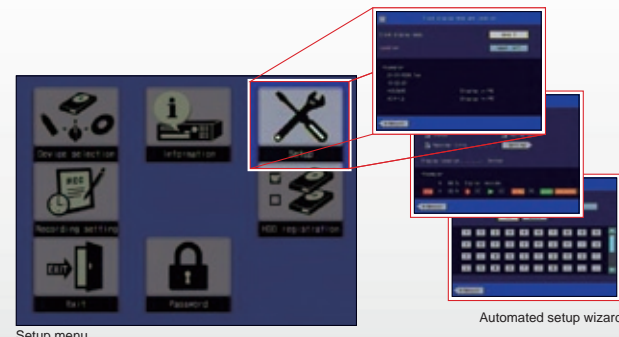
Easy Setup

Front access

Up to 2 HDDs can be housed inside the recorder. No additional mounting kit is needed. Installing, replacing or removing an HDD is quick and easy thanks to quick access – the recorder does not even have to be removed from its rack since the front panel is easily removed.

Easy setup

An automated wizard speeds you through the initial setup process, in which you synchronize the clock, and set up the HDDs and cameras. Recording setup too has been automated as much as possible. For example, if you specify the recording interval and period, recording quality will be set automatically. And your complete setup profile can be easily saved using external media.
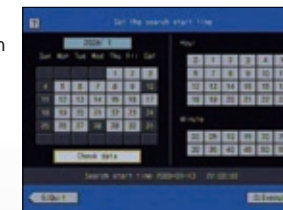
Setup menu

Automated setup wizard

Easy Operation

Various search functions

A wide range of search functions is provided for enhanced operating ease.

■ **Time/date search**
This makes use of the on-screen calendar.

Time/date search menu

■ **Alarm list search**
Emergency recordings in the alarm list can be searched, and up to 8 can be selected for batch copying to a disc or external storage.
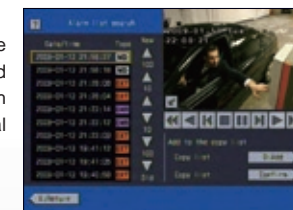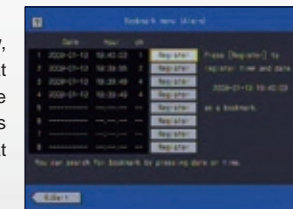
Alarm list search menu

■ **Motion-detect search**
The operator is not limited to alarm recordings triggered by movement. Search criteria (sensitivity, area) can be set for specific locations so as to narrow down such motion searches.

Motion search menu

■ **Bookmark search**
If something needs further review, a bookmark can be added at that point by pressing the pause button; bookmark search enables the operator to jump back to that point for confirmation.
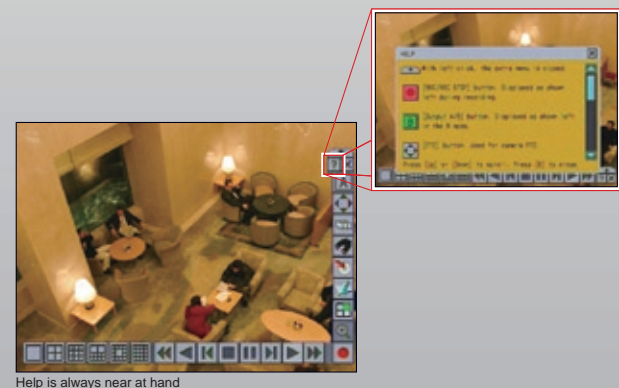
Bookmark search menu

Mouse operation

Anyone can set up a system, and less training is required to operate it. All operations – including basic setup, camera selection, playback, search, and data copy – can be performed simply using the mouse. The most frequently used functions are grouped for instant access.
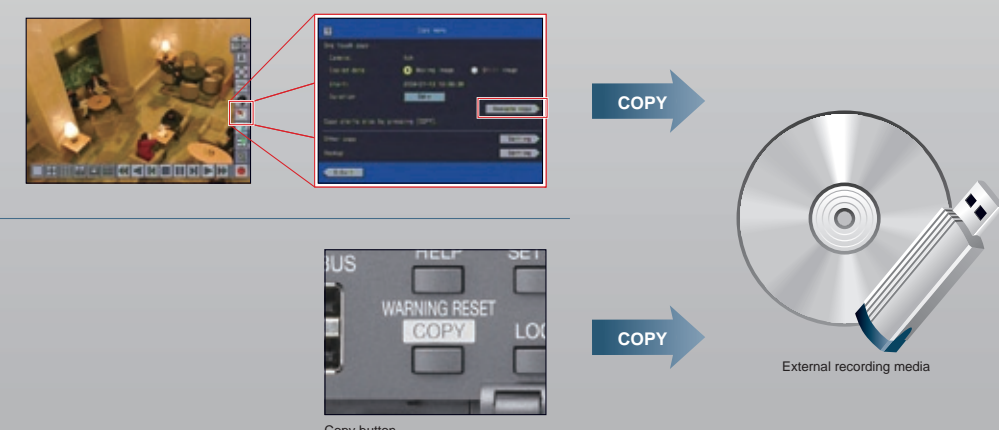
On-screen help

Clear instructions and advice are never more than a mouse-click away. That's because there is a Help button on almost every screen, ready to provide the answer to your question.

Help is always near at hand

Simple copy/archive (Just two touch)

You can copy recorded data – as still images or video footage – to a DVD/CD disc or USB memory device. There's a simple copy button on the front panel and another available via on-screen menu, ready to duplicate any scene you like. Two presses on the button (or two clicks with the mouse) is all it takes, unless you want to change any settings.

COPY

COPY
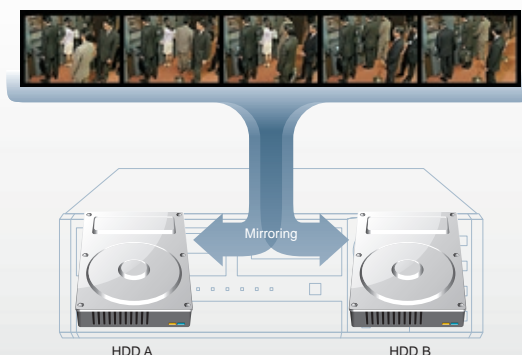
Copy button

External recording media

High Reliability

Mitsubishi Electric takes a comprehensive view of reliability. It includes the hardware – especially the hard disk drives (HDDs) – and maintenance features. On the software side, these security digital recorders are equipped for mirroring and spanning (user selectable), while encryption of the data helps to protect it. Moreover, central monitoring and recording of 16 high-quality video feeds is possible with just a single security digital recorder. Connected to a network, this can become the hub of a scalable system that offers the dual benefits of flexibility and reliability.
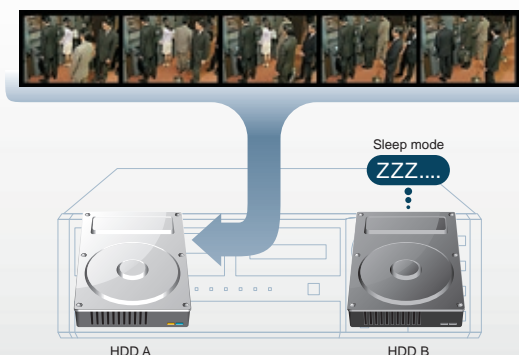
Data Protection

M irroring

With the two internal HDDs set up in mirroring mode, all data is recorded simultaneously on both drives. This enhances reliability since even if one of the hard drives were to malfunction, your recorded images would still be safe. Separate and spanning (JBOD) modes are also available. Also, you can easily duplicate and back up data, using one of the internal HDDs as a backup drive.

Mirroring

HDD A   HDD B

S leep mode

With multiple hard drives (internal and external) connected, the system can automatically power down some of them when not in use. This reduces power consumption and helps to prolong equipment life. And so that no drive is switched off for more than 24 hours, it will be automatically powered up at least once a day at a preset time.
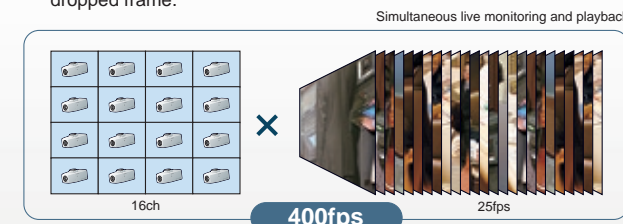
Sleep mode
ZZZ....

HDD A   HDD B

Recording, Playback & Monitoring

R eal-time recording & live monitoring

Live camera footage (PAL) can be displayed at 25fps, equivalent to standard TV broadcasting.

■ **Multiplexer function**
Up to 16 video feeds can be monitored simultaneously using a split-screen layout – with each recording at a full 25fps (CIF). This represents a system performance of 400 frames per second, without a single dropped frame.

Simultaneous live monitoring and playback

16ch   **400fps**   25fps

■ **Triplex capability**
Enables smooth real-time monitoring, recording and playback of recorded material – all at the same time. And dual multiplexer output means you can display camera footage on a second monitor.

X GA output to PC monitor

An XGA terminal (D-sub 15-pin)* is provided so that D1 images can be displayed at native resolution on a PC monitor. It is also possible to arrange for simultaneous A/B output display with a variety of split-display layouts to choose from.
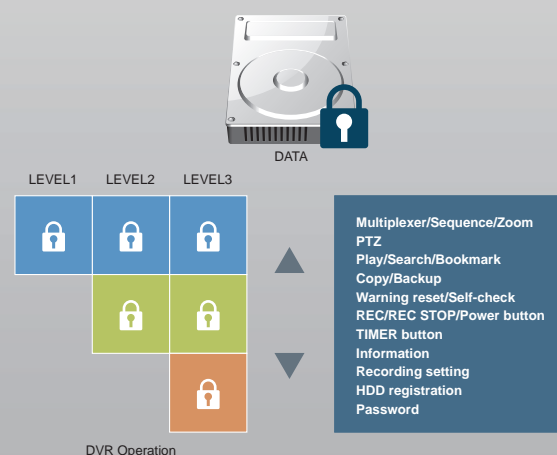
* Except DX-TL304E

A   A B   A
              B   B A

T wo-way audio

With a microphone and speakers connected to the security digital recorder, an operator can converse with someone at a remote site using a PC and the monitoring system network.
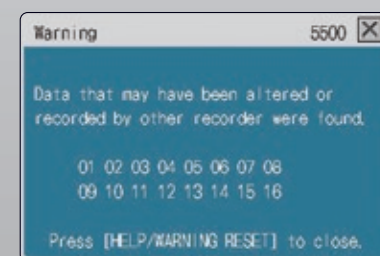
P assword

It is possible to set 4 different passwords: 3 regular operator levels and one that enables recorded data to be erased. At Level 3, it is possible to changes an operator's level.

DATA

LEVEL1 LEVEL2 LEVEL3

Multiplexer/Sequence/Zoom
PTZ
Play/Search/Bookmark
Copy/Backup
Warning reset/Self-check
REC/REC STOP/Power button
TIMER button
Information
Recording setting
HDD registration
Password

DVR Operation

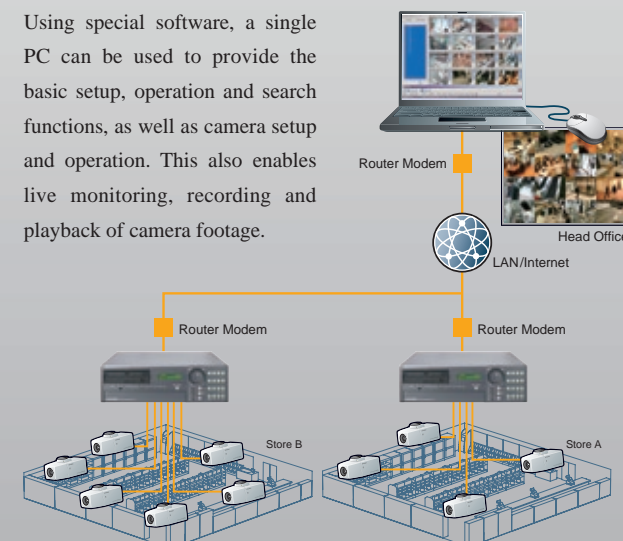### **D** ata tampering detection & data protection

Hash codes, which are generated to ensure the integrity of recorded data, make it possible (during playback) to detect attempts to edit camera footage. The same is true of data imported from a CD or USB memory device. It is also possible to set data protection periods so that vital footage is not accidentally erased. Separate search and playback functions are provided for this data. And to ensure the protection of personal information, an appropriate period can be specified so that older footage cannot be displayed.

Warning   5500 ✕

Data that may have been altered or
recorded by other recorder were found.

01 02 03 04 05 06 07 08
09 10 11 12 13 14 15 16

Press [HELP/WARNING RESET] to close.

Detection of data tampering

C entral management system

Using special software, a single PC can be used to provide the basic setup, operation and search functions, as well as camera setup and operation. This also enables live monitoring, recording and playback of camera footage.

Router Modem

Head Office

LAN/Internet

Router Modem   Router Modem

Store B   Store A

N etwork-based monitoring & data transfers

Using a LAN, it is possible to create highly scalable monitoring systems.

■ Alarm information and still (JPEG) images can be automatically transmitted as e-mail attachments* to notify remote staff.

■ On receipt of alarm notification, the alarm recording data can be uploaded to an FTP server enabling remote staff to see what is happening on site.

■ Up to 15 PCs can be used to monitor a site using nothing more than standard web browser software (Internet Explorer 6.0 or later).

■ The security digital recorder clock can be synchronized remotely using SNTP over TCP/IP. This makes it possible to ensure that all units in a multi-recorder system record the time accurately.
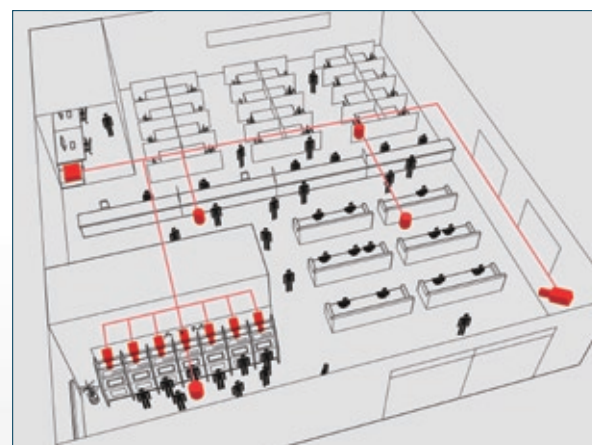
* JPEG image attachment is not available with the DX-TL304E(EX).

Solutions

Whatever the scale and whatever the needs, Mitsubishi Electric provides a flexible, scalable solution. The product lineup includes the powerful DX-TL5716E for centralized monitoring of large-scale facilities, and the small-footprint DX-TL308E/304E(XE) for small stores and offices.

It is possible to create a central management system to monitor even very large scale facilities. High-performance multitasking makes light work of complex tasks. Up to 16 recorders can be linked via cascade connection, and up to 16 HDD extension units (DX-ZD6UE). Connected via LAN, one operator can monitor and control multiple cameras at the same time. Solutions for ATM and POS monitoring systems can be tailored to your needs (for further details contact your nearest dealer).
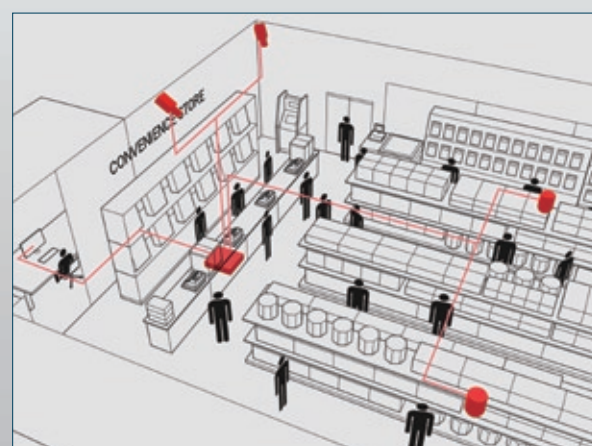
Bank solutions

Banks demand high security, and Mitsubishi Electric security digital recorders deliver. As well as offering customizable motion detection for each camera, they can be connected to external sensors and panic buttons. Location, date/time and transaction details provided by ATMs can be embedded in the MPEG-4 recorded images as text data. This information can then be displayed during playback. The high compression offered by MPEG-4 recording and the ability to connect up to 16 HDD extension units (8 in the case of the DX-TL308E/304E(EX)) makes it possible to store many months of camera footage. Security is further enhanced by such features as password lock and data protection. Also daily time synchronization means that the transaction data captured by the security digital recorder can be reliably matched with ATM camera footage for clear identification of illegal activity.

Building management solutions

There is an increasing demand for the efficient management of large multi-purpose buildings, offices, and residential blocks without having to invest in extra manpower. In particular, owners require centralized monitoring to protect against crime, fires and other emergencies. Mitsubishi Electric can offer a reliable and cost-effective way to achieve this using PC software for the simultaneous control and monitoring of a large number of cameras using multiple security digital recorders connected via LAN.
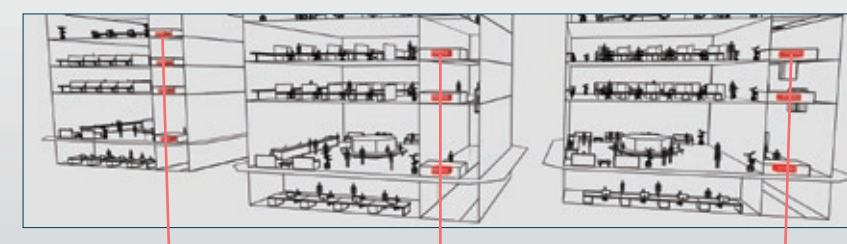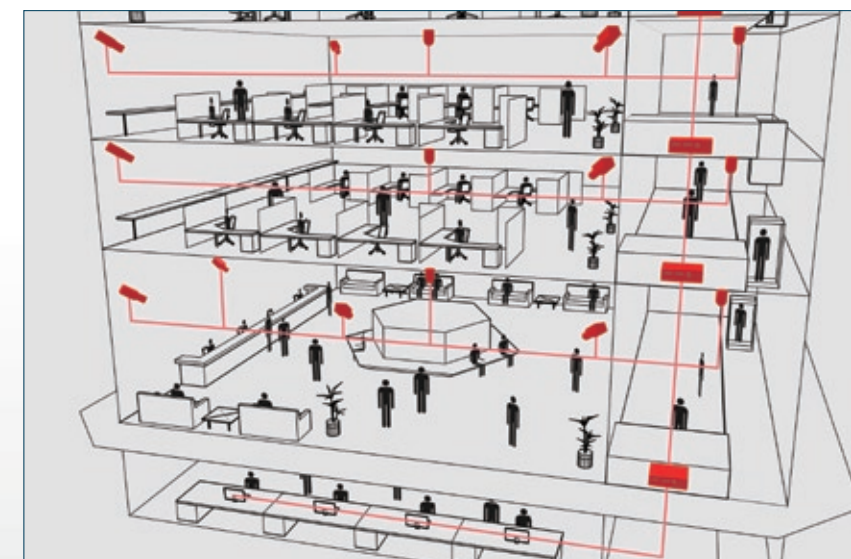
Retail shop solutions

In a typical retail shop, cameras cover not only the cash register but also the entry/exit points, interior and exterior. Recording (including audio for the cash register) for each location can be customized depending on its importance (e.g. so as not to use up too much storage on backyard footage, etc.). Location, date/time and transaction details provided by POS units can be embedded in the MPEG-4 data as text. This information can then be displayed during playback. Also daily time synchronization means that the transaction data stored by the security digital recorder can be reliably matched with camera footage to identify events.

16ch high-performance model: DX-TL5716E

- Finance: main bank offices, branches (teller sections, etc.)
- Retail: supermarkets, shopping malls
- Public sector: utility/government buildings, train stations, sports stadiums, etc.

8ch/4ch small-footprint models: DX-TL308E, DX-TL304E(EX)

- Finance: ATM transaction monitoring
- Retail: convenience stores, petrol stations, small shops
- Buildings: residential flats (light surveillance)

DX-TL6000

Features & functions at a glance

	DX-TL5716E	DX-TL308E	DX-TL304E(EX)
No. of cameras/channels	16	8	4
Compression	MPEG-4	MPEG-4	MPEG-4
Internal HDD bays	2	2	2
DX-ZD6UE connectivity	Up to 16	Up to 8	Up to 8
DX-KB5UE connectivity	✓(RJ11)	✓(DB9)	✓(DB9)
DVD drive	Built-in	(External)	(External)
Max. recording rate (CIF)	400 frames/s	200 frames/s	100 frames/s
Display rate (live)	800 fields/s	400 fields/s	200 fields/s
Two-way audio	✓	✓	✓
TCP/IP connectivity	✓	✓	✓
PC software	✓	✓	✓
Web browser	✓	✓	✓
Cascade connectivity	✓	–	–
Vertical installation	–	✓	✓

Options

D X-ZD6UE HDD extension unit

The DX-ZD6UE offers a reliable way to increase storage capacity. Up to 16 can be connected to a single recorder, making use of all available storage modes, as well as the HDD sleep mode. You can also connect an extension unit directly to a PC for viewing the recorded data (with an additional viewer).
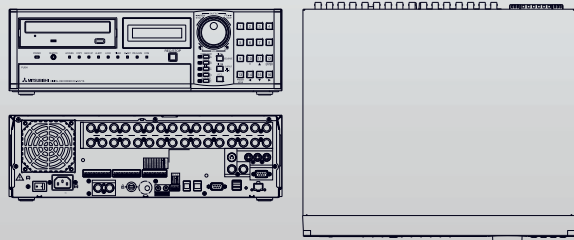
D X-KB5UE DVR control keyboard

Complete with joy stick for PTZ control of dome cameras, LCD status display and jog/shuttle dial, the DX-KB5UE is a full-featured control keyboard designed for security professionals. Up to 4 keyboards can be used with any single system (1~16 recorders) for camera/recorder control.
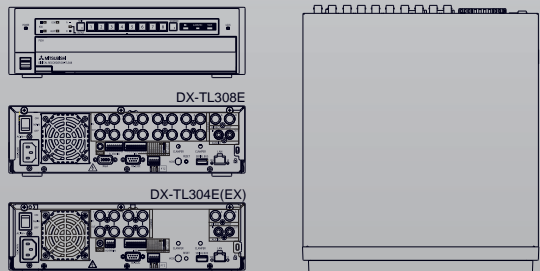
Dimensions

D X-TL5716E

D X-TL308E, DX-TL304E(EX)

DX-TL308E

DX-TL304E(EX)

Specifications

Item		DX-TL5716E	DX-TL308E	DX-TL304E(EX)
Colour System		PAL	PAL	PAL
Compression		MPEG4	MPEG4	MPEG4
Main Recording Device		Serial-ATA HDD (max. 2 HDD bay)		
Video	Display rate	800 field/sec./display (50 field/ch)	400 field/sec./display (50 field/ch)	200 field/sec./display (50 field/ch)
	Resolution	704 x 576 pixels : 4CIF		
		704 x 288 pixels : 2CIF		
		352 x 288 pixels : CIF		
Audio	Recording System	AD-PCM		
	In / Out	2 (RCA) / 1 (RCA)	1 (RCA) / 2 (RCA)	1 (RCA) / 2 (RCA)
Recording	Recording Rate (Guarantee)	400 frame/sec. (CIF)	200 frame/sec. (CIF)	100 frame/sec. (CIF)
	Alarm	Yes		
	Pre-alarm	Yes		
	Long Pre-alarm	Yes		
	Emergency	Yes		
	Power Failure Recovery	Yes		
	Text	Yes (RS-232C, for ATM/POS)		
Video Terminal	In / Out	16 (BNC) / 16 (BNC, Loop)	8 (BNC) / 8 (BNC, Loop)	4 (BNC) / 4 (BNC, Loop)
	Output A	1 (BNC) / 1 (RCA) / 1 (S)	1 (BNC) / 1 (RCA)	1 (BNC) / 1 (RCA)
	Output B	1 (BNC, Live only)		
	XGA	1 (DB15)	1 (DB15)	1 (DB15, only TL304EX)
Menu Language		English, French, German, Spanish, Italian, Russian, Portuguese, Polish and Czech		
Archiving		DX-ZD5UE/DX-ZD6UE (Option)		
		USB memory (copy only)		
		DVD/CD-drive (Built-in)	USB DVD/CD-drive (copy only)	
Search	Date & Time	Yes		
	Alarm List	Yes		
	Bookmark	Yes		
	Motion	Yes		
	Text	Yes		
Multiplexer	Split	4, 9, 10, 13, 16 (output A/B)	4, 9 (output A/B)	4 (output A/B)
	Sequential	1, 4, 9, 10, 13 (output A/B) 1	1, 4 (output A/B)	1 (output A/B)
	Covert	Yes		
	Alarm Display	Yes		
Interface	Inputs	16 (alarm), 1 (emergency), 3 (event)	8 (alarm), 1 (emergency), 3 (event)	4 (alarm), 1 (emergency), 3 (event)
	Outputs	16 (alarm), 4 (mode out), 1 (call out), DC12V	2 (mode out or alarm out), 1 (call out), DC12V	2 (mode out or alarm out), 1 (call out), DC12V
	RS232C	1 (DB9, for DVR control and ATM/POS)	1 (DB9, for DVR control (ex. DX-KB5UE) and ATM/POS)	
	RS422/RS232C	1 / 1 (2-wire, for PTZ control)		
		Supported PTZ camera : A.D., BBV, BOSCH, DENNARD, ELBEX, JVC, OMIKRON, PELCO-D, PELCO-P, SAMSUNG, VIDO, PANASONIC, PELCO-COAXITRON		
	Serial BUS (Front / Rear)	2 / 2	2 / 1	2 / 1
	LAN	1 (RJ45, 10 Base-T/100 Base-TX)	1 (RJ45, 10 Base-T/100 Base-TX)	1 (RJ45, 10 Base-T/100 Base-TX)
Network	Alarm nortification	Yes		
	E-mail Alarm	Yes	Yes	Yes (no attach a still image)
	FTP Nortification	Yes		
	Two-way audio	Yes		
	Time Synchronization	SNTP		
	Web browser	Yes		
	PC software	Yes		
Others	TimerProgram	16 programs		
	Password Lock	3 levels + HDD protect		
	Motion Detection	2 petterns (5 sensitivity)		
	Protect Data	500 positions		
	Easy HDD replacing	Yes		
	Tampered Image Detection	Mitsubishi Original (Hush)		
	Auto Expired Date	Yes		
Power Supply		AC100-240V 50/60Hz		
Rated Input		0.9A-0.4A (100-240V)	0.7A-0.33A (100-240V)	0.7A-0.33A (100-240V)
Operating Conditions		Temperature: 5°C (41°F)-40°C (104°F)		
		Humidity: 30-80%RH		
		Altitude: 2,000m (Max.)		
Design	Dimensions	425(W) x 133(H) x 375(D) mm	300(W) x 91(H) x 340(D) mm	300(W) x 91(H) x 340(D) mm
	Weight	9.7kg (without HDD)	5.7kg (without HDD)	5.6kg (without HDD)
Options	DX-ZD5UE	Yes (max.8 units, Serial Bus)	Yes (max.4 units, Serial Bus)	Yes (max.4 units, Serial Bus)
	DX-ZD6UE	Yes (max.16 units, Serial Bus)	Yes (max.8 units, Serial Bus)	Yes (max.8 units, Serial Bus)
	DX-KB5UE	Yes (max. 4 units, RJ11)	Yes (RS232C, DB9)	Yes (RS232C, DB9)
	Mouse	Yes (not included in the box)	Yes (not included in the box)	Yes (not included in the box)
Accessories	AC power cord	2 (UK and Continental plugs)		
	Installer's manual	English (please contact our local branches for another language)		
	User's manual	User's manual (English, French, German, Spanish, Italian and Russian)		
		* Safety notice is described by also Portuguese, Dutch, Swedish, Czech and Polish		
	other	RS232C Operation Manual		

* Except DX-TL304E(EX)